PATENT
28179-7

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s)	:	Yoel Wazana, Joda Paulus
Serial No.	:	10/659,881
Filed	:	September 11, 2003
Title	:	Apparatus and Method For Disassembling Containers Having Thermoplastic Joining Surfaces
Group/Division	:	1725
Examiner	:	Elve, Maria Alexandra
Our Reference	:	28179-7 (Formerly 21101-0006 and 7413-1006)

DECLARATION OF SAGIE SHANUN

I, Sagie Shanun, declare and state as follows:

Background and Qualifications

1. I am presently the Head of the Technology Department of Wazana Brothers International, Inc., d/b/a Micro Solutions Enterprises ("MSE"). Attached, as Exhibit 1 is a true and accurate copy of my current resume.

2. I have a BS in Science Engineering from Ben Gurion University, Beer-Sheva, Israel, 1997. I began a master's degree program in Chemistry at Cal State University in Northridge, California, and have not completed the requirements. While a student at the university my senior project was evaluating new resin systems for the aeronautics applications in the Israeli Air Force industries.

3. After receiving my degree I worked for about 6 years developing special coatings and environmental field testing of coating and composite materials for a variety of end uses. In essence I was involved with research and development of new materials and processes.

4. In the period 2003 to 2004 I developed an ink jet printing process for directly printing on metallic sporting goods such as baseball bats, cylinders for bicycles and motorcycles. This included developing the ink compositions and the machines to conduct the process.

5. In October 2004 I started at MSE as the R&D Manager for the inkjet operation. Since then I have also had the responsibilities of Quality Control Manager and Head of the Technology Department in which I am responsible for design and manufacture of tooling for both the inkjet and toner cartridge operations. This includes systems, devices and processes for repairing and remanufacturing inkjet and toner cartridges.

Materials Reviewed

6. I have read a copy of United States Patent Application 10/659,881, entitled Apparatus and Method For Disassembling Containers Having Thermoplastic Joining Surfaces ("the '881 application"), naming Yoel Wazana and Joda Paulus as inventors. I understand that it describes a method of disassembling a laser printer toner cartridge through use of laser that cuts through the cartridge walls at the joining surfaces of the original cartridge. I also understand that the laser cutting does not impinge on the electrical components embedded in the cartridge body and leaves the separated cartridge sections in a condition such that they can be joined together by re-welding and will meet Original Equipment Manufacturer (OEM) specifications.

7. I have also read a copy of the following:

- United States Patent 6,223,010 to Araki
- United States Patent 5,676,794 to Baley
- United States Patent 6,609,044 to Basista
- United States Patent 4,549,066 to Piccioli

- United States Patent and Trademark Office Communication dated April 18, 2007, in the '881 application
- Claims 6-7 and 15-16 of the '881 application
- United States Patent 6,754,460 to Lewis

Relationship to the Applicants and Assignee

8. One of the named inventors, Yoel Wazana, is the President of MSE. I met him for the first time when I interviewed at MSE. Joda Paulus an employee at MSE and who I supervise. I first met him soon after I became employed by MSE. Part of my job responsibilities includes overseeing MSE's patent acquisitions.

Level of Ordinary Skill in the Field

9. In my opinion the level of skill possessed by a person of ordinary skill in the laser printer toner cartridge and inkjet printer cartridge repair and remanufacturing industry would include some training and experience in tool making or the equivalent. Such a person would also some computer operation skills. Such a person would also have some training or experience in basic theory and operation of electromechanical devices.

Information, Statements and Opinions Regarding the Present Invention As Defined By the Claims

10. I have been requested to provide information and opinions in regard to my experience and background in the toner cartridge and inkjet repair and remanufacturing industry, as may be related to the laser cutting

method and the resulting cut toner cartridge sections of the '881 application. I have not received any compensation for providing the information or opinions set forth herein, except my normal salary at MSE, and I do not expect to be provided with any specific compensation for the information, statements or opinions provided in this declaration.

11. When I was first told about the method, I thought that it was very sophisticated and a very creative way to open a cartridge.

12. For approximately the last 3-4 years one the laser cutter devices as shown in the present application has been demonstrated at the World Expo Trade Show, the main trade show for this industry. I have personally attended the last 2 trade shows, in August of 2005 and August 2006. At both trade shows many industry personnel, customers as well as competitors, have seen the cartridge laser cutter demonstrated, and invariably comment about how creative and innovative it is. This device has attracted a great amount of interest in the industry. People are very enthusiastic and impressed with the operation of the laser cutter.

13. As referred to at page 5 of the '881 application the laser device used in the present method is commercially available. Upon information and belief informed by one of the inventors, prior to use in the cartridge repair and remanufacturing industry, the use of these laser devices was limited to etching and engraving plastic and treated aluminum for plaques and trophies. They had never been used to actually cut through a toner cartridge.

14. Attached as Exhibit 2 is a true and accurate copy of Xenetech information provided in regard to one of the lasers referred to in the '881 application. As is readily apparent its use is limited to the engraving industry. No use as a device for cutting through cartridges is found in the Exhibit 2 materials.

15. Attached as Exhibit 3 is a true and accurate copy of Beam Dynamics information provided in regard to one of the lasers referred to in the application. As is readily apparent its use is limited to the engraving, printed circuit fabrication, screen print and graphic overlay, plastics and wood fabrication, medical products manufacturing and sheet metal fabrication industries. No use as a device for cutting through cartridges is found in the Exhibit 3 materials. Also, although the Beam Dynamics laser is described as being able to cut through materials, it does not have any rotary device, as does the Exhibit 2 laser. Thus, the Beam Dynamics device typically is for two-dimensional uses, as compared to three-dimensional uses in toner cartridge disassembly.

16. For the above reasons, i.e., a completely different use in a completely different industry, it is my opinion that it was neither expected or predictable that such a laser could have been used to open up cartridges so that damage to relatively fragile components, such as electrical conductors or printed circuit boards could be avoided.

17. As referred to in the application, at page 5, the commercially available computer-implemented software for use in the engraving industry has been modified to instruct the laser to cut through the cartridges at their interfacing joining surfaces as further described in the application. This is an important feature for the claimed process for several reasons. First, one of the objects of remanufactured cartridges made from cartridge sections made with the present disassembly process is to have the remanufactured cartridge meet OEM specifications. Second, by use of computer controlled cutting, exact, reproducible cuts are made, and variations and labor costs due to individual human cutting operations are avoided. Third, the computer-implemented laser cuts are not only very precise, but they are also very esthetically pleasing to

the viewer. This is important in the cartridge repair and remanufacturing industry because it contributes to the credibility associated with remanufactured cartridges that use this process, in comparison to relatively rough, unattractive looking remanufactured cartridges made with other disassembly techniques. In other words, not only do remanufactured cartridges made from disassembled sections by this process perform like OEM cartridges, they also look like OEM cartridges. The cuts made to the cartridge with this process have a very good appearance that looks professional and is sellable to a customer who is accustomed to OEM quality products.

18. With respect to the Baley '794 patent I notice that it describes a toner cartridge that has joining surfaces that are linear, i.e., extend along a single dimension. As described in the present application the cartridges for which the present disassembly process is used has joining surfaces that extend in three dimensions.

19. Also, Baley '794 cuts with circular saws, and has no disclosure regarding use of a laser. The cuts that result from a circular saw are very rough in comparison to the laser cutting in the present process. The saw cutting process also creates a relatively large amount of dust and cut-away material in comparison to that resulting from the laser cutting process of the present claims. Furthermore, the laser cutting process is safer in general to the operator due to essentially no noise, no concern about cutting blades and no concern about dust, which of course would be major concerns in the Baley process.

20. In addition to the above, the Baley process is a manual process that requires one operator per machine. In comparison, the laser cutter process as claimed is to a great extent computer operated. This means that a single

operator can control three laser cutting machines for the present process, all of which results in an unexpected advantage to the present process.

21. The Baley process is limited to a full cut without interruption(s) to account for electrical conductors or any other component that should not be cut. As is claimed and disclosed, the present computer controlled laser cutting process is accomplished along discrete line segments, and thus can be interrupted at any point along the line to circumvent any obstacle.

22. Also, in the Baley process, there is no control or variation in intensity or depth. As claimed and disclosed in the present application, the laser cutting beam intensity can be controlled in order to modify the depth of the cut made along the line segments.

23. Araki '010 discloses a process by which the cartridge is not re-manufactured. Rather, only certain internal components are recycled. The cartridge sections themselves are ground up and the material is then used to manufacture entirely new products; not to reuse the original cartridge sections. In Araki no requirement in made regarding the details of the cut, such as precision, specific depth, etc., except for avoidance of cutting the specific components that are to be recycled.

24. Also, in Araki '010, especially as shown Figures 2-4, for example, the cuts made are such that re-assembly will be impossible. Those cuts are rough, high speed cuts and not a precise, esthetic cut that results from the presently claimed process. The cuts in Araki are linear, and not along several dimensions as in the present invention. The cartridge sections resulting from the Araki cutting cannot be reassembled.

25. Basista '044 is not intended to cut cartridges. It is purely for two-dimensional cutting of sheet material. The Basista application is primarily

related to the methodology and software for cutting shapes out of a sheet to optimize the speed of cutting sheet materials.

26. Piccioli '066 is specifically for trimming a blow-molded polyester container. No cutting of a cartridge is disclosed. No cartridge is made with a blow-molding technique. Piccioli is directed to the original manufacturing operation. It has nothing to do with repair or remanufacturing of a product. The laser beam of Piccioli is fixed so that it cuts in one dimension. The presently claimed process cuts in three dimensions.

27. Lewis '460 describes a method used by a company that I recognize as the number one supplier of equipment and components to the toner cartridge remanufacturing industry. On information and belief the companies who repair and remanufacture toner cartridges do not have in-house tool making resources and therefore use equipment purchased from Static Control Components, Inc., known as SCC. It is my belief and opinion that the technology described in this '640 patent is a good benchmark for the type and sophistication of the equipment used in the remanufacturing industry for disassembling toner cartridges.

28. The Lewis patent is limited to use of a contact cutting tool, which creates a much wider gap and therefore uses up more of the cartridge material than does the present laser cutting process. Lewis yields a less attractive cut and product in comparison to the laser cuts resulting from the presently claimed process. The Lewis process is a manual process, so it is slower than the laser process described and claimed, and the Lewis process is limited to one operator per machine. More dust, debris and a higher risk of injury result from the Lewis process and system. The Lewis process and system is also noisy in comparison to the present laser system and process. The presently claimed process and system are very advantageous in terms of operator safety

and comfort in comparison to Lewis. The Lewis process and system has very limited capabilities in terms of precision, depth and so forth in comparison to the presently described and claimed laser cutting process and system.

29. I have been warned that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon. I declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true.

Date: July 16, 2007

SAGIE SHANUN

RESUME

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SUMMARY

Project manager and R&D Engineer in the following areas: Composite materials, process, design and testing as well as Printing ink , Coating and Adhesive formulation testing and qualification. Hands on experience in lab working, Quality Control and fabrication.

FIRMS

October 2004-Present: Micro Solutions Enterprises
2003 July- April 2004:: **Ano-Brite Inc**, California- R&D Formulator/Chemist on contract basis.
1997 - 2003: **Israeli Governmental Laboratories**

TECHNICAL EXPERIENCE

Micro Solutions Enterprises: Head of the technology and development department: In charge of developing and manufacturing tooling and automation for the manufacturing facility. Head of the main test lab that gives contract base environmental test services to the different departments. Head of the Inkjet operation. In charge of filing and maintaining the Intellectual property of the company

ANO-BRITE INC

R&D OF INK FORMULAS: Formulated, tested and developed new ink formulations for the following industries: Inkjet printers, pad printing and screen printing. Implemented new formulas in manufacturing process.

DESIGN ENGINEERING: Designed prototype machines for printing on aluminum products.

ISRAELI GOVERNMENTAL LABS

PROCESS: Managed manufacturing facility for composite materials. The technology was, mainly, hand lay-up of epoxy resins with fiberglass and carbon fibers. Managed the technicians and the hole Quality Control and Qualification processes on the products. Hands on experience as a fabricator and as supervisor.

COATINGS: Developed composite coatings resistant to climate and environmental conditions for use as camouflage for air and ground vehicles, structures, antennae housings and radomes.

ADHESIVES: Compounded unique formulas for Hi-Strength bonding material. Verified and tested samples of available commercial bonding products for military and civil applications, including fiber and pure optics, using computerized thermal and mechanical analysis per MIL & ASTM standards.

COMPOSITES DESIGN AND FABRICATION: Manufactured Composites for special structural applications according to client demands, using epoxy and polyester matrices, reinforced glass and carbon fibers. Designed complicated structural composites, including hybrids composites, using computerized analytical programs for mechanical and thermal analysis.

TEST & QUALIFCATION: Conducted, per MIL and ASTM standards, mechanical physical and thermal, environmental and field testing for polymers, adhesives and coatings using; INSTRON, Impact, DMA, Specific Gravity, TGA, DSC, Q-PANEL, WEATHER-O-METER, IR, SEM and Optical Microscopy.

ENCAPSULATION: Created chemical compounds to encapsulate critical electronic circuits against mechanical and environmental impact.

MANAGEMENT

Managed military and civilian personnel in multiple project areas associated with materials, materials testing and research. Directed multi-disciplinary teams with diverse backgrounds and education over a two-year period. Performed self directed study and research in human behavior to better understand personnel and management in general. Delivered technical training to clients and subordinates on military electronics, application techniques and military discipline.

EDUCATION

CIMATRON	1998	Certificate	3DCAD program
Israeli Military Officers School	1994	Certificate	Leadership and Combat
Ben-Gurion University Israel	1993	B.Sc.	Materials Science Engineering

INTERNAL REPORTS

- Yellowing phenomena and change in mechanical properties as a result of weathering epoxy formulations using natural and accelerated tests.
- Appearance and adhesion of urethane and acryl coatings due to outdoor exposure.
- Adhesion qualities of epoxy and urethane adhesives in severe environmental conditions and different surface treatments.

COMPUTER SKILLS

AUTO-CAD, ANSYS, SOLID WORKS, MICROSOFT (WORD, EXEL, POWER-POINT, PROJECT), MATLAB, CONCERTO

AWARD & HONORS

- 2006, Employee of the year
- 2005, Outstanding performance achievement
- 2002, Member of a team that won "Israeli Defense Prize" (given to the best 1 out of 96 individuals, by the president of Israel).
- 2000, Member of a technological team who won the "Chief of Intelligence Prize" (given to the best two projects from all over the country).

LANGUAGES Spoken and written English and Hebrew; and conversational Spanish.

REFERENCES Will be given upon request.